

REMARKS

Applicant has carefully reviewed the Application in light of the Office Action dated October 3, 2002. At the time of the Office Action, claims 1-83 were pending in the Application. Applicant amends claims 1-83. Applicant also adds new claims 84 and 85 to the Application. Applicant respectfully submits that no new matter is added by these new claims as they only distinctly point out elements and features already present in the Application. Applicant respectfully submits that the amendments to the claims correct typographical errors or address minor antecedent basis issues. The amendments are not the result of any prior art reference and thus do not narrow the scope of any of the claims. Furthermore, the amendments are not related to patentability issues and only further clarify subject matter already present. All of Applicant's amendments are without prejudice or disclaimer. Applicant respectfully requests reconsideration of the pending claims and favorable action in this case.

In the Drawings

The Application was filed with informal drawings that are acceptable for examination purposes. Formal drawings for the Application have been appended to this Response. Applicant submits that the formal drawings do not add any new matter to the Application and are in full compliance with 37 U.S.C. §1.81, §1.83, and §1.84.

Information Disclosure Statement (IDS)

Applicant has submitted an IDS dated October 29, 1999 that included a reference ("Host Extensions for IP Multicasting") the Examiner has yet to identify as being acknowledged. Applicant presumes this to be an Examiner oversight and therefore asks the Examiner to review the reference submitted in the identified IDS and, further, to formally indicate that the reference was considered in the prosecution of the Application.

Section 102 Rejection

The Examiner rejects claims 1, 3, 11, 17, 19, 36, 38-41, 47-49, 57, 63, 65, and 82 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,434,616 issued to Urano et al. ("Urano"). Applicant respectfully traverses this rejection for the following reasons.

Independent claims 1, 3, 38, 48, and 49 recite, in general, receiving instructions that indicate how packets received by the forwarding agent are to be processed and processing the packets according to the instructions. In contrast to these teachings, Urano discloses a method for monitoring abnormal behavior in a computer system. The method includes collecting log information in order to detect an event. (See Urano, Column 2, lines 61-67.) When one of the manager computer 104, console computer 106, and operator 105 detects an abnormal condition, the manager computer 104 collects more detailed information. (See Urano, Column 5, lines 37-40.) In the example offered by Urano, the manager computer 104 supposes that an event has occurred and collects the logs to verify it. The method purportedly reduces the load on the manager computer 104 necessary to make an analysis and minimizes network traffic. (See Urano, Column

6, lines 5-13.) However, nowhere in *Urano* is there any disclosure, teaching, or suggestion of receiving instructions and processing packets according to the instructions as recited in the above-identified claims. For at least this reason, these claims are patentable over *Urano*. Additionally, claims 11, 17, 19, and 36 depend from Independent Claim 3 and are therefore also allowable over *Urano*. Also, claims 39, 40, 41, and 47 and claims 57, 63, 65, and 82 depend from Independent claims 38 and 49 respectively and are therefore also allowable over *Urano* for similar reasons. Accordingly, claims 1, 3, 11, 17, 19, 36, 38-41, 47-49, 57, 63, 65, and 82 are not anticipated by *Urano*. Notice to this effect is respectfully requested in the form of an allowance of these claims.

#### Section 103 Rejections

The Examiner rejects Claim 2 under 35 U.S.C. 103(a) as being unpatentable over *Urano* in view of U.S. Patent No. 6,243,748 issued to Arai ("Arai"). Claim 1, from which claim 2 depends, has been shown to be patentably distinct from *Urano*. Also, in contrast to Claim 2, Arai discloses a method and apparatus for managing a large scale network including apparatuses to be managed. Arai fails to provide any disclosure that would teach or suggest all of the claim limitations as is required for a proper §103 analysis. Moreover, Arai fails to offer any additional subject matter combinable with *Urano* that would be material to patentability. For example, neither Arai nor any other reference of record offers any suggestion or motivation to make the proposed combination as is required by MPEP §2143. Therefore, Applicant respectfully submits that claim 2 is patentably distinct from the proposed *Urano*-Arai combination.

The Examiner rejects claims 4, 6, 10, 50, 52, and 56 under 35 U.S.C. 103(a) as being unpatentable over *Urano* in view of U.S. Patent No. 5,961,595 issued to Kawagoe ("*Kawagoe*"). Claims 3 and 49, from which claims 4, 6, and 10 and claims 50, 52, and 56 respectively depend, have been shown to be patentably distinct from *Urano*. Also, in contrast to the subject matter of these claims, *Kawagoe* discloses a network management system with a hardware resource management module shared between networks. *Kawagoe* fails to provide any additional disclosure that would teach or suggest all of the claim limitations as is required for a proper §103 analysis. Moreover, *Kawagoe* fails to offer any additional subject matter combinable with *Urano* that would be material to patentability. Neither *Kawagoe* nor any other reference of record offer any suggestion or motivation to make the proposed combination. Additionally, the Examiner has also failed to show that such a combination could have been based on the knowledge available to one having ordinary skill in the art. Therefore, Applicant respectfully submits that claims 4, 6, 10, 50, 52, and 56 are patentably distinct from the proposed *Urano-Kawagoe* combination.

The Examiner rejects claims 12, 34, 35, 37, 58, 80, 81, and 83 under 35 U.S.C. 103(a) as being unpatentable over *Urano* in view of U.S. Patent No. 6,407,997 issued to DeNap ("*DeNap*"). Claims 3 and 49, from which claims 12, 34, 35, and 37 and claims 58, 80, and 81 respectively depend, have been shown to be patentable over *Urano*. Also, in contrast to the subject matter of these claims, *DeNap* discloses an asynchronous transfer mode system for providing telephony service. *DeNap*, however, fails to provide any additional disclosure that would teach or suggest all of the claim limitations. *DeNap* also fails to offer any additional subject

matter combinable with *Urano* that would be material to patentability. For example, neither *DeNap* nor any other reference of record offers any suggestion or motivation to make the proposed combination or that such a combination could have been based on the knowledge available to one having ordinary skill in the art. Therefore, Applicant respectfully submits that claims 12, 34, 35, 37, 58, 80, 81, and 83 are patentably distinct from the proposed *Urano-DeNap* combination.

The Examiner rejects claims 13 and 59 under 35 U.S.C. 103(a) as being unpatentable over *Urano* in view of U.S. Patent No. 6,363,072 issued to Furuichi ("*Furuichi*"). Claims 3 and 49, from which claims 13 and 59 respectively depend, have been shown to be patentable distinct from *Urano*. Additionally, in contrast to the subject matter of these claims, *Furuichi* discloses an ATM network communication control system allowing end-to-end connection to be set up with ease. *Furuichi* fails to provide any disclosure that would teach or suggest all of the claim limitations of claims 13 and 59. Moreover, *Furuichi* fails to offer any additional subject matter combinable with *Urano* that would be material to patentability. Neither *Furuichi* nor any other reference of record offer any suggestion or motivation to make the proposed combination. Therefore, Applicant respectfully submits that claims 13 and 59 are patentably distinct from the proposed *Urano-Furuichi* combination.

The Examiner rejects claims 14 and 60 under 35 U.S.C. 103(a) as being unpatentable over *Urano* in view of U.S. Patent No. 6,065,061 issued to Blahut et al. ("*Blahut*"). Claims 3 and 49, from which claims 14 and 60 respectively depend, have been shown to be allowable from *Urano*. Additionally, *Blahut* discloses an internet protocol based network architecture for cable television access with switched feedback. *Blahut*,

however, fails to provide any disclosure that would teach or suggest all of the claim limitations of claims 14 and 60 as is required for a proper §103 analysis. Moreover, *Blahut* fails to offer any additional subject matter combinable with *Urano* that would be material to patentability. For example, neither *Blahut* nor any other reference of record offer any suggestion or motivation to make the proposed combination or that such a combination could have been based on the knowledge available to one having ordinary skill in the art. Therefore, Applicant respectfully submits that claims 14 and 60 are patentably distinct from the proposed *Urano-Blahut* combination.

The Examiner rejects claims 15 and 61 under 35 U.S.C. 103(a) as being unpatentable over *Urano* in view of U.S. Patent No. 6,125,390 issued to Touboul ("*Touboul*"). Claims 3 and 49, from which claims 15 and 61 respectively depend, have been shown to be allowable over *Urano*. Also, in contrast to the subject matter of these claims, *Touboul* discloses a method and apparatus for monitoring and controlling in a network. *Touboul* fails to provide any disclosure that would teach or suggest all of the claim limitations as is required for a proper §103 analysis. Moreover, *Touboul* fails to offer any additional subject matter combinable with *Urano* that would be material to patentability. For example, neither *Touboul* nor any other reference of record offer any suggestion or motivation to make the proposed combination. Therefore, Applicant respectfully submits that claims 15 and 61 are patentably distinct from the proposed *Urano-Touboul* combination.

The Examiner rejects claims 16 and 62 under 35 U.S.C. 103(a) as being unpatentable over *Urano* in view of U.S. Patent No. 5,926,539 issued to Shtivelman ("*Shtivelman*"). Claims 3 and 49, from which claims 16 and 62 respectively depend, have

been shown to be allowable over *Urano*. In addition, *Shtivelman* discloses a method and apparatus for determining agent availability based on a level of uncompleted tasks. *Shtivelman*, however, fails to provide any disclosure that would teach or suggest all of the claim limitations of claims 16 and 62. Moreover, *Shtivelman* fails to offer any additional subject matter combinable with *Urano* that would be material to patentability. For example, neither *Shtivelman* nor any other reference of record offer any suggestion or motivation to make the proposed combination or that such a combination could have been based on the knowledge available to one having ordinary skill in the art. Therefore, Applicant respectfully submits that claims 16 and 62 are patentably distinct from the proposed *Urano-Shtivelman* combination.

The Examiner rejects claims 18 and 64 under 35 U.S.C. 103(a) as being unpatentable over *Urano* in view of U.S. Patent No. 6,070,187 issued to Subramaniam et al. ("*Subramaniam*"). Claims 3 and 49, from which claims 18 and 64 respectively depend, have been shown to be allowable over *Urano*. Additionally, *Subramaniam* discloses a method and apparatus for configuring a network node to be its own gateway. *Subramaniam*, however, fails to provide any disclosure that would teach or suggest all of the claim limitations of claims 18 and 64. Moreover, *Subramaniam* fails to offer any additional subject matter combinable with *Urano* that would be material to patentability. For example, neither *Subramaniam* nor any other reference of record offer any suggestion or motivation to make the proposed combination. Therefore, Applicant respectfully submits that claims 18 and 64 are patentably distinct from the proposed *Urano-Subramaniam* combination.

The Examiner rejects claims 21-33, 42-46, and 67-79 under 35 U.S.C. 103(a) as being unpatentable over *Urano* in view of U.S. Patent No. 6,172,980 issued to Flanders et al. ("*Flanders*"). Claims 3 and 49, from claims 21-23 and claims 42-46 and 67-79 respectively depend, have been shown to be allowable over *Urano*. Also, *Flanders* discloses a method and apparatus for determining agent availability based on a level of uncompleted tasks. But *Flanders* fails to offer any disclosure that would teach or suggest all of the claim limitations as is required for a proper §103 analysis. Moreover, *Flanders* fails to offer any additional subject matter combinable with *Urano* that would be material to patentability. For example, neither *Flanders* nor any other reference of record offers any suggestion or motivation to make the proposed combination or that such a combination could have been based on the knowledge available to one having ordinary skill in the art. Therefore, Applicant respectfully submits that claims 21-33, 42-46, and 67-79 are patentably distinct from the proposed *Urano-Flanders* combination.

The Examiner rejects claims 20 and 66 under 35 U.S.C. 103(a) as being unpatentable over *Urano* in view of *Arai*. Claims 3 and 49, from which claims 20 and 66 respectively depend, have been shown to be allowable over *Urano*. Moreover, *Arai* fails to provide any additional disclosure combinable with *Urano* that would be material to patentability. Accordingly, claims 20 and 66 are patentably distinct from the proposed combination.

Claims 5 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Urano* in view of *Kawagoe* and in further view of *Arai*. Claims 3 and 49, from which claims 5 and 51 respectively depend, have been shown to be allowable over *Urano*. Moreover, *Kawagoe* fails to provide any additional



disclosure combinable with *Urano* or *Arai* that would be material to patentability. Accordingly, claims 5 and 51 are patentably distinct from the proposed combination.

Claims 7 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Urano* in view of *Kawagoe* and in further view of *DeNap*. Claims 3 and 49, from which claims 7 and 53 respectively depend, have been shown to be allowable over *Urano*. Moreover, neither *Kawagoe* nor *DeNap* provide any additional disclosure combinable with *Urano* that would be material to patentability. Accordingly, claims 7 and 53 are patentably distinct from the proposed combination.

Claims 8 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Urano* in view of *Kawagoe* and in further view of *Furuichi*. Claims 3 and 49, from which claims 8 and 54 respectively depend, have been shown to be allowable over *Urano*. Moreover, neither *Kawagoe* nor *Furuichi* provide any additional disclosure combinable with *Urano* that would be material to patentability. Accordingly, claims 8 and 54 are patentably distinct from the proposed combination.

Claims 9 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Urano* in view of *Kawagoe* and in further view of *Blahut*. Claims 3 and 49, from which claims 9 and 55 respectively depend, have been shown to be allowable over *Urano*. Moreover, neither *Kawagoe* nor *Blahut* provide any additional disclosure combinable with *Urano* that would be material to patentability. Accordingly, claims 9 and 55 are patentably distinct from the proposed combination.

Thus, the rejections associated with each of these references have been traversed as illustrated by the analysis provided above. Accordingly, the remaining claims are allowable over the proposed combinations using similar reasoning. Additionally, the Examiner has yet to provide any

evidence in any of the cited references, or in the knowledge available to one having ordinary skill in the art, to make any of the proposed combinations. Moreover, with regards to all of the proffered §103 rejections asserted, the Examiner is yet to show a modicum of evidence that would reflect any degree of success for the proposed combinations of references much less a reasonable degree of success as is required for a proper §103 analysis.

Accordingly, all of the pending claims have been shown to be allowable as they are patentably distinct from the references of record. Notice to this effect is respectfully requested in the form of a full allowance of claims 1-85.

CONCLUSION

Applicant has now made an earnest attempt to place this case in condition for immediate allowance. For the foregoing reasons and for other reasons clear and apparent, Applicant respectfully requests reconsideration and allowance of claims 1-85.

The required fee of \$36.00 is submitted herewith for two (2) additional claims and is believed to be correct. The Commissioner is hereby authorized to charge additional fees or credit any overpayments to Deposit Account No. 02-0384 of Baker Botts, L.L.P.

If there are matters that can be discussed by telephone to advance prosecution of this application, Applicant invites the Examiner to contact its attorney at the number provided below.

Respectfully submitted,  
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Marked-Up Version of Specification

IN THE SPECIFICATION

Please amend the specification as follows.

Under the heading "CROSS REFERENCE TO RELATED APPLICATIONS," please amend the paragraph beginning at page 1, line 4, as follows:

CROSS REFERENCE TO RELATED APPLICATIONS

This application is related to co-pending U.S. Patent Application No. [\_\_\_\_\_] (Attorney Docket No. CISC514)]09/346,634 entitled DISPATCHING PACKETS FROM A FORWARDING AGENT USING TAG SWITCHING; [filed concurrently herewith, which is incorporated herein by reference for all purposes]; [and] co-pending U.S. Patent Application No. [\_\_\_\_\_] (Attorney Docket No. CISC515)]09/347,124 entitled CASCADING MULTIPLE SERVICES ON A FORWARDING AGENT [filed concurrently herewith, which is incorporated herein by reference for all purposes]; [and] co-pending U.S. Patent Application No. [\_\_\_\_\_] (Attorney Docket No. CISC516)]09/347,111 entitled LOAD BALANCING USING DISTRIBUTED FORWARDING AGENTS WITH APPLICATION BASED FEEDBACK FOR DIFFERENT VIRTUAL MACHINES [filed concurrently herewith, which is incorporated herein by reference for all purposes]; [and] co-pending U.S. Patent Application No. [\_\_\_\_\_] (Attorney Docket No. CISC517)]09/347,428 entitled GATHERING NETWORK STATISTICS IN A DISTRIBUTED NETWORK SERVICE ENVIRONMENT [filed concurrently herewith, which is incorporated herein by reference for all purposes]; [and] co-pending U.S. Patent Application No. [\_\_\_\_\_] (Attorney Docket No. CISC518)]09/347,122 entitled HANDLING PACKET FRAGMENTS IN A DISTRIBUTED NETWORK SERVICE ENVIRONMENT [filed concurrently

herewith, which is incorporated herein by reference for all purposes]; [and] co-pending U.S. Patent Application No. [\_\_\_\_\_] (Attorney Docket No. CISC519)]09/347,108 entitled SENDING INSTRUCTIONS FROM A SERVICE MANAGER TO FORWARDING AGENTS ON A NEED TO KNOW BASIS [filed concurrently herewith, which is incorporated herein by reference for all purposes]; [and] co-pending U.S. Patent Application No. [\_\_\_\_\_] (Attorney Docket No. CISC520)]09/347,126 entitled DISTRIBUTION OF NETWORK SERVICES AMONG MULTIPLE SERVICE MANAGERS WITHOUT CLIENT INVOLVEMENT [filed concurrently herewith, which is incorporated herein by reference for all purposes]; [and] co-pending U.S. Patent Application No. [\_\_\_\_\_] (Attorney Docket No. CISC522)]09/347,048 entitled SYNCHRONIZING SERVICE INSTRUCTIONS AMONG FORWARDING AGENTS USING A SERVICE MANAGER [filed concurrently herewith, which is incorporated herein by reference for all purposes]; [and] co-pending U.S. Patent Application No. [\_\_\_\_\_] (Attorney Docket No. CISC527)]09/347,125 entitled BACKUP SERVICE MANAGERS FOR PROVIDING RELIABLE NETWORK SERVICES IN A DISTRIBUTED ENVIRONMENT [filed concurrently herewith, which is incorporated herein by reference for all purposes]; [and] co-pending U.S. Patent Application No. [\_\_\_\_\_] (Attorney Docket No. CISC528)]09/347,123 entitled STATEFUL FAILOVER OF SERVICE MANAGERS [filed concurrently herewith, which is incorporated herein by reference for all purposes]; [and] co-pending U.S. Patent Application No. [\_\_\_\_\_] (Attorney Docket No. CISC529)]09/347,109 entitled NETWORK ADDRESS TRANSLATION USING A FORWARDING AGENT [filed concurrently herewith, which is incorporated herein by reference for all purposes]; and co-pending U.S. Patent Application No. [\_\_\_\_\_] (Attorney Docket No. CISC530)]09/347,036

entitled UNPROXYING A CONNECTION USING A FORWARDING AGENT, all  
filed [concurrently herewith, which is] on July 2, 1999 and  
incorporated herein by reference for all purposes.

Marked-Up Version of the Amended Claims

Applicant has produced a marked-up version of the amended claims below. Please amend the claims as follows.

1. (Amended) A method [of]for providing a network service, [including]comprising:

[implementing a forwarding agent on a router wherein the forwarding agent is operative to receive]receiving instructions from a service manager at a forwarding agent, the instructions indicating how packets received by the forwarding agent are to be processed;

processing the packets received at the forwarding agent according to the instructions; and

forwarding selected packets from the forwarding agent to the service manager in response to the instructions [; and

receiving instructions at the forwarding agent from the service manager detailing how to handle the forwarded packets].

2. (Amended) [A]The method of [providing a network service as recited in] claim 1, wherein the forwarding agent forwards the selected packets to the service manager using [UDP]a user datagram protocol (UDP).

3. (Amended) A method [of]for providing a network service, [including]comprising:

receiving packet interest instructions from a service manager at a forwarding agent, the instructions specifying packets that the forwarding agent is [instructed] to [send]communicate to the service manager;

receiving an initial packet at a forwarding agent that matches one of the packets specified in the packet interest instructions from the service manager; and

[sending]communicating the initial packet from the forwarding agent to the service manager so that the packet may be processed at the service manager to determine one or more actions that are to be performed for the packet.

4. (Amended) [A]The method of [providing a network service as recited in] claim 3, further [including]comprising:

receiving packet handling instructions from the service manager at the forwarding agent that include the actions determined by the service manager for the packet.

5. (Amended) [A]The method of [providing a network service as recited in] claim 4, wherein the receiving packet handling instructions from the service manager at the forwarding agent that include the actions determined by the service manager for the packet includes receiving a [UDP]user datagram protocol (UDP) packet at the forwarding agent.



6. (Amended) [A]The method of [providing a network service as recited in] claim 4, further [including]comprising:

receiving the initial packet from the service manager [back] at the forwarding agent along with the packet handling instructions; and

handling the packet at the forwarding agent according to the packet handling instructions.

7. (Amended) [A]The method of [providing a network service as recited in] claim 6, wherein handling the packet at the forwarding agent according to the packet handling instructions includes translating the destination [IP]internet protocol (IP) address in the packet so that the packet is forwarded to a different IP address than the IP address originally included in [the]a packet header.

8. (Amended) [A]The method of [providing a network service as recited in] claim 6, wherein handling the packet at the forwarding agent according to the packet handling instructions includes [sending]communicating the packet to a destination specified in the packet handling instructions using tag switching.

9. (Amended) [A]The method of [providing a network service as recited in] claim 6, wherein handling the packet at the forwarding agent according to the packet handling instructions includes [sending]communicating the packet to a destination specified in the packet handling instructions using IP tunneling.

10. (Amended) [A]The method of [providing a network service as recited in] claim 4, further [including]comprising:

receiving a subsequent packet at the forwarding agent;  
determining that the subsequent packet matches a criteria included in the packet handling instructions; and  
handling the subsequent packet at the forwarding agent according to the packet handling instructions.

11. (Amended) [A]The method of [providing a network service as recited in] claim 3, further [including]comprising:

forwarding the packet from the service manager to a destination other than the forwarding agent, the destination being determined by the service manager.

12. (Amended) [A]The method of [providing a network service as recited in] claim 11, wherein forwarding the packet from the service manager to a destination other than the forwarding agent includes translating the destination IP address in the packet.

13. (Amended) [A]The method of [providing a network service as recited in] claim 11, wherein forwarding the packet from the service manager to a destination other than the forwarding agent includes [sending]communicating the packet to the destination using tag switching.

14. (Amended) [A]The method of [providing a network service as recited in] claim 11, wherein forwarding the packet from the service manager to a destination other than the forwarding agent includes [~~sending~~]communicating the packet to the destination using IP tunneling.

15. (Amended) [A]The method of [providing a network service as recited in] claim 3, wherein the forwarding agent is implemented on a selected one of a group consisting of:

a switch;  
a load balancer; and  
a router.

16. (Amended) [A]The method of [providing a network service as recited in] claim 3, wherein the [forwarding agent is implemented on a switch]instructions provided by the service manager are associated with a selected one of a group consisting of:

a routing operation;  
a statistics gathering operation;  
a load balancing operation;  
a packet modification operation;  
a tunneling operation; and  
a tag switching operation.

17. (Amended) [A]The method of [providing a network service as recited in] claim 3, wherein receiving packet interest instructions from a service manager at a forwarding agent specifying packets that the forwarding agent is instructed to [send]communicate to the service manager includes receiving a multicast of the packet interest instructions [sent]communicated to a plurality of forwarding agents.

18. (Amended) [A]The method of [providing a network service as recited in] claim 17, further [including]comprising:

receiving unicast packet handling instructions from the service manager at the forwarding agent that include the actions determined by the service manager for the packet.

19. (Amended) [A]The method of [providing a network service as recited in] claim 17, further [including]comprising:

receiving multicast packet handling instructions from the service manager at the plurality of forwarding agents that include the actions determined by the service manager for the packet.

20. (Amended) [A]The method of [providing a network service as recited in] claim 3, [further including] wherein specifying packets that the forwarding agent is instructed to [send]communicate to the service manager includes receiving a UDP packet at the forwarding agent.

21. (Amended) [A]The method of [providing a network service as recited in] claim 3, wherein receiving the packet interest instructions from [a]the service manager at [a]the forwarding agent includes receiving a wildcard affinity at the forwarding agent that identifies one or more flows to be received by the forwarding agent.

22. (Amended) [A]The method of [providing a network service as recited in] claim 21, wherein the wildcard affinity includes a selected one of a group consisting of:

- a source IP address[,];
- a destination IP address[,];
- a source port [number,]; and
- a destination port [number].

23. (Amended) [A]The method of [providing a network service as recited in] claim 22, wherein the wildcard affinity further includes a protocol identifier.

24. (Amended) [A]The method of [providing a network service as recited in] claim 22, wherein the wildcard affinity source IP address includes a plurality of IP addresses.

25. (Amended) [A]The method of [providing a network service as recited in] claim 22, wherein the wildcard affinity destination IP address includes a plurality of IP addresses.

26. (Amended) [A]The method of [providing a network service as recited in] claim 22, wherein the wildcard affinity destination port includes a plurality of ports.

27. (Amended) [A]The method of [providing a network service as recited in] claim 22, wherein the wildcard affinity source port includes a plurality of ports.

28. (Amended) [A]The method of [providing a network service as recited in] claim 22, wherein the wildcard affinity source IP address includes a range of IP addresses.

29. (Amended) [A]The method of [providing a network service as recited in] claim 22, wherein the wildcard affinity destination IP address includes a range of IP addresses.

30. (Amended) [A]The method of [providing a network service as recited in] claim 22, wherein the wildcard affinity destination port includes a range of ports.

31. (Amended) [A]The method of [providing a network service as recited in] claim 22, wherein the wildcard affinity source port includes a range of ports.

32. (Amended) [A]The method of [providing a network service as recited in] claim 22, wherein the wildcard affinity source IP address specifies a set of IP addresses by using a [mask] netmask element.

33. (Amended) [A]The method of [providing a network service as recited in] claim 22, wherein the wildcard affinity destination IP address specifies a set of IP addresses by using a [mask] netmask element.

34. (Amended) [A]The method of [providing a network service as recited in] claim 3, wherein the action determined is translating the destination IP address of the initial packet.

35. (Amended) [A]The method of [providing a network service as recited in] claim 3, wherein the action determined is forwarding the initial packet to a destination different than the destination IP address of the initial packet.

36. (Amended) [A]The method of [providing a network service as recited in] claim 3, wherein the action determined is forwarding the initial packet without changing the initial packet and reporting information about the packet to the service manager.

37. (Amended) [A]The method of [providing a network service as recited in] claim 3, wherein the action determined is translating the source IP address of the initial packet.

38. (Amended) A forwarding agent, comprising:  
a service manager receiving interface for receiving instructions from a service manager specifying actions to be performed for server designated packets;  
a service manager sending interface for sending packets to the service manager;  
a network packet receiving interface for receiving [IP]internet protocol (IP) packets from a network;  
a network packet forwarding interface for forwarding IP packets to the network; and  
a processor for performing the specified actions on the server designated packets.

39. (Amended) [A]The forwarding agent as recited in claim 38, further [including]comprising a service manager instruction storage element for storing the service manager instructions.

40. (Amended) [A]The forwarding agent as recited in claim 39, wherein the service manager instruction storage element includes a general instruction storage that stores criteria for forwarding packets to the service manager and a specific instruction storage that stores specific instructions for handling the server designated packets.

41. (Amended) [A]The forwarding agent as recited in claim [39]40, further [including]comprising a comparator for comparing portions of newly received packets to the stored criteria.



42. (Amended) [A]The forwarding agent as recited in claim [39]40, wherein the stored criteria are affinities that identify one or more flows.

43. (Amended) [A]The forwarding agent as recited in claim 38, wherein the [stored criteria are affinities]forwarding agent is included in a selected one of a group consisting of:

a router;  
a switch; and  
a load balancer.

44. (Amended) [A]The forwarding agent as recited in claim [38]40, wherein the stored criteria [are]include a selected one or more of a source IP address, a destination IP address, a source port, and a destination port.

45. (Amended) [A]The forwarding agent as recited in claim 38, wherein the server designated packets are designated by affinities.

46. (Amended) [A]The forwarding agent as recited in claim 38, wherein the server designated packets are designated by a selected one or more of a source IP address, a destination IP address, a source port, and a destination port.

47. (Amended) [A]The forwarding agent as recited in claim 38, wherein the service manager receiving interface and the network packet receiving interface are the same interface.

48. (Amended) A computer [program product]medium for handling packets, the computer [program product being embodied in a computer readable] medium [and] comprising [computer instructions for]code operable to:

[implementing a forwarding agent on a router wherein the forwarding agent is operative to] receive instructions from a service manager;

process packets according to the instructions; and  
[forwarding]forward selected packets from [the]a forwarding agent to the service manager[; and

receiving instructions at the forwarding agent from the service manager detailing how to handle the forwarded packets].

49. (Amended) A computer [program product]medium for providing a network service, the computer [program product being embodied in a computer readable] medium [and] comprising [computer instructions for]code operable to:

[receiving]receive packet interest instructions from a service manager [at a forwarding agent], the instructions specifying one or more packets that [the]a forwarding agent is [instructed] to [send]communicate to the service manager;

[receiving]receive an initial packet [at a forwarding agent] that matches one of the packets specified in the packet interest instructions from the service manager; and

[sending]communicate the initial packet [at a forwarding agent] to the service manager so that the packet may be processed at the service manager to determine one or more actions that are to be performed for the packet.

50. (Amended) [A computer program product for providing a network service as recited in]The medium of claim 49, [the computer program product further comprising computer instructions for]wherein the code is further operable to:

[receiving]receive packet handling instructions from the service manager [at a forwarding agent] that include the actions determined by the service manager for the packet.

51. (Amended) [A computer program product for providing a network service as recited in]The medium of claim 50, wherein receiving the packet handling instructions from the service manager at the forwarding agent that include the actions determined by the service manager for the packet includes receiving a [UDP]a user datagram protocol (UDP) packet at the forwarding agent.

52. (Amended) [A computer program product for providing a network service as recited in]The medium of claim 50, [the computer program product further comprising computer instructions for]wherein the code is further operable to:

[receiving]receive the initial packet from the service manager [back at the forwarding agent] along with the packet handling instructions; and

[handling]handle the packet [at the forwarding agent] according to the packet handling instructions.

53. (Amended) [A computer program product for providing a network service as recited in] The medium of claim 52, wherein handling the packet [at the forwarding agent] according to the packet handling instructions includes translating the destination IP address in the packet so that the packet is forwarded to a different IP address than the IP address originally included in the packet header.

54. (Amended) [A computer program product for providing a network service as recited in] The medium of claim 52, wherein handling the packet [at the forwarding agent] according to the packet handling instructions includes [sending] communicating the packet to a destination specified in the packet handling instructions using tag switching.

55. (Amended) [A computer program product for providing a network service as recited in] The medium of claim 52, wherein handling the packet [at the forwarding agent] according to the packet handling instructions includes [sending] communicating the packet to a destination specified in the packet handling using IP tunneling.

56. (Amended) [A computer program product for providing a network service as recited in]The medium of claim 50, [the computer program product further comprising computer instructions for]wherein the code is further operable to:

[receiving]receive a subsequent packet [at the forwarding agent];

[determining]determine that the subsequent packet matches a criteria included in the packet handling instructions; and

[handling]handle the subsequent packet [at the forwarding agent] according to the packet handling instructions.

57. (Amended) [A computer program product for providing a network service as recited in]The medium of claim 49, [the computer program product further comprising computer instructions for]wherein the code is further operable to [forwarding]forward the packet from the service manager to a destination other than the forwarding agent, the destination being determined by the service manager.

58. (Amended) [A computer program product for providing a network service as recited in]The medium of claim 57, wherein forwarding the packet from the service manager to a destination other than the forwarding agent includes translating the destination IP address in the packet.

59. (Amended) [A computer program product for providing a network service as recited in]The medium of claim 57, wherein forwarding the packet from the service manager to a destination other than the forwarding agent includes [sending]communicating the packet to the destination using tag switching.

60. (Amended) [A computer program product for providing a network service as recited in] The medium of claim 57, wherein forwarding the packet from the service manager to a destination other than the forwarding agent includes [~~sending~~]communicating the packet to the destination using IP tunneling.

61. (Amended) [A computer program product for providing a network service as recited in] The medium of claim 49, wherein the forwarding agent is implemented on a selected one of a switch and a router.

62. (Amended) [A computer program product for providing a network service as recited in] The medium of claim 49, wherein the [~~forwarding agent~~]service manager is implemented on a switch.

63. (Amended) [A computer program product for providing a network service as recited in] The medium of claim 49, wherein receiving the packet interest instructions from a service manager [at a forwarding agent specifying packets that the forwarding agent is instructed to send to the service manager] includes receiving a multicast of the packet interest instructions sent to a plurality of forwarding agents.

64. (Amended) [A computer program product for providing a network service as recited in] The medium of claim 63, [the computer program product further comprising computer instructions for receiving] wherein the code is further operable to receive unicast packet handling instructions from the service manager [at the forwarding agent] that include the actions determined by the service manager for the packet.

65. (Amended) [A computer program product for providing a network service as recited in] The medium of claim 63, [the computer program product further comprising computer instructions for receiving] wherein the code is further operable to receive multicast packet handling instructions from the service manager at the plurality of forwarding agents that include the actions determined by the service manager for the packet.

66. (Amended) [A computer program product for providing a network service as recited in] The medium of claim 49, [the computer program product further comprising instructions for specifying] wherein the code is further operable to [packets that the forwarding agent is instructed to send to the service manager includes receiving] receive a UDP packet at the forwarding agent.

67. (Amended) [A computer program product for providing a network service as recited in]The medium of claim 49, wherein [receiving packet interest instructions from a service manager at a forwarding agent includes receiving]the code is further operable to receive a wildcard affinity [at the forwarding agent].

68. (Amended) [A computer program product for providing a network service as recited in]The medium of claim 67, wherein the wildcard affinity includes a selected one or more of a source IP address, a destination IP address, a source port [number], and a destination port [number].

69. (Amended) [A computer program product for providing a network service as recited in]The medium of claim 67, wherein the wildcard affinity further includes a protocol identifier.

70. (Amended) [A computer program product for providing a network service as recited in]The medium of claim 67, wherein the wildcard affinity source IP address includes a plurality of IP addresses.

71. (Amended) [A computer program product for providing a network service as recited in]The medium of claim 68, wherein the wildcard affinity destination IP address includes a plurality of IP addresses.



72. (Amended) [A computer program product for providing a network service as recited in] The medium of claim 68, wherein the wildcard affinity destination port includes a plurality of ports.

73. (Amended) [A computer program product for providing a network service as recited in] The medium of claim 68, wherein the wildcard affinity source port includes a plurality of ports.

74. (Amended) [A computer program product for providing a network service as recited in] The medium of claim 68, wherein the wildcard affinity source IP address includes a range of IP addresses.

75. (Amended) [A computer program product for providing a network service as recited in] The medium of claim 68, wherein the wildcard affinity destination IP address includes a range of IP addresses.

76. (Amended) [A computer program product for providing a network service as recited in] The medium of claim 68, wherein the wildcard affinity destination port includes a range of ports.

77. (Amended) [A computer program product for providing a network service as recited in] The medium of claim 68, wherein the wildcard affinity source port includes a range of ports.

78. (Amended) [A computer program product for providing a network service as recited in]The medium of claim 68, wherein the wildcard affinity source IP address specifies a set of IP addresses by using a [mask] netmask element.

79. (Amended) [A computer program product for providing a network service as recited in]The medium of claim 68, wherein the wildcard affinity destination IP address specifies a set of IP addresses by using a [mask] netmask element.

80. (Amended) [A computer program product for providing a network service as recited in]The medium of claim 49, wherein the action determined is translating the destination IP address of the initial packet.

81. (Amended) [A computer program product for providing a network service as recited in]The medium of claim 49, wherein the action determined is forwarding the initial packet to a destination different than the destination IP address of the initial packet.

82. (Amended) [A computer program product for providing a network service as recited in]The medium of claim 49, wherein the action determined is forwarding the initial packet without changing the initial packet and reporting information about the packet to the service manager.

83. (Amended) [A computer program product for providing a network service as recited in] The medium of claim 49, wherein the action determined is translating the source IP address of the initial packet.

84. (New) A system for providing a network service, comprising:

means for receiving instructions from a service manager at a forwarding agent, the instructions indicating how packets received by the forwarding agent are to be processed;

means for processing the packets according to the instructions; and

means for forwarding selected packets from the forwarding agent to the service manager.

85. (New) A system for providing a network service, comprising:

means for receiving packet interest instructions from a service manager at a forwarding agent, the instructions specifying packets that the forwarding agent is to send to the service manager;

means for receiving an initial packet at a forwarding agent that matches one of the packets specified in the packet interest instructions from the service manager; and

means for communicating the initial packet from the forwarding agent to the service manager so that the packet may be processed at the service manager to determine actions that are to be performed for the packet.